

Step1:

In this step we implement 3 pieces of RSA which are key generation, encryption, and decryption.

Encryption is done using multiple steps. The value for n is equal to prime numbers $p * q$, the value for the totient in Euler's is $(p-1)*(q-1)$, and e is the public key exponent. After generating these values we input the input file as the filename parameter in a bitvector. We then take this bitvector and encrypt each 128 bit section using pow function with the bitvector e and n and put it into a 256 bit section.

Decryption works similar to encryption in its initial steps to get the values for e , n , p , and q . we then decrypt using the inverse of the encryption method by taking out the 128 bits from the 256 bit section and taking the multiplicative inverse

Key generation is then a small section section where we just take the p and q values and we then find greatest common denominator for the values and return them in one function

Step2: